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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,982	06/30/2003	Yue Liu	H0004045 US	6986

7590 03/18/2004

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EXAMINER
SOUW, BERNARD E

ART UNIT	PAPER NUMBER
2881	

DATE MAILED: 03/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/607,982	LIU, YUE	
	Examiner	Art Unit	
	Bernard E Souw	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." (e.g., USPAT No. 5,903,588 cited on page 3). Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4-7, 10, 11 and 13-16 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Ouchi et al. (USPAT 6,597,713), hereinafter denoted as Ouchi'713.

► Regarding claims 1 and 10, Ouchi'713 discloses in an opto-electronic housing shown in Fig.19, comprising a submount 140 having a plurality of conductive traces 112; a can (21+7) attached to the submount 140 forming a cavity having an opening (denoted with arrows in Fig.19) for light to pass through; and a transparent window in the light opening attached to the can (21+7), wherein the plurality of conductive traces 112 extends from inside the cavity to beyond the can (21+7), as recited in Col.15/ll.51-65; and wherein the cavity is hermetically sealed, as can be seen from the closed structure (130+112+140) in Fig.19.

► Regarding claims 2 and 11, Ouchi's submount 140 is made of ceramic, as recited in Col.15/ll.58-59.

► Regarding claims 4 and 13, Ouchi's device further includes a micro lens array 111 as shown in Fig.19 & 20 and recited in Col.16/ll.8-9.

► Regarding claims 5 and 14, Ouchi's device further includes an opto-electronic array (8,9).

► Regarding claims 6, 7, 15 and 16, Ouchi's optoelectronic array (8,9) includes a vertical cavity surface emitting lasers (VCSEL) that is substantially the same as in the first embodiment shown in Fig.7 &10 and recited in Col.10/ll.5-15, and besides VCSELs also photodetectors, as shown in Fig.24 and recited in Col.18/ll.5-14.

5. Claims 1, 2, 4-7, 10, 11 and 13-16 are *also* rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Peterson et al. (USPAT 6,661,084), hereinafter denoted as Peterson'084.

► Regarding claims 1 and 10, Peterson'084 discloses in Fig.3A-B an opto-electronic housing 10, comprising a submount 30 in Fig.3A, submount 30' in Fig.3B, having a plurality of conductive traces 24; a can 16 in Fig.3A or 16' in Fig.3B attached to the submount 30 (Fig.3A) or 30' (Fig.3B) forming a cavity having an opening 22 for light to pass through; and a transparent window 26 in Fig.3A-B in the light opening attached to the can 16 or 16', wherein the plurality of conductive traces 24 extends from inside the cavity to beyond the can (through electrical lead 40), as recited in Col.9/ll.3-59; and wherein the cavity is hermetically sealed, as expressly recited in Col.9/ll.60-67 & Col.10/ll.1-26.

► Regarding claims 2 and 11, Peterson's submount is made of ceramic, as recited in the Abstract/ll.7-9 and in Col.11/ll.13-17.

► Regarding claims 4 and 13, Peterson's device further includes a micro lens array 96 as shown in Fig.9 and recited in Col.18/ll.6-21.

► Regarding claims 5 and 14, Peterson's device further includes an opto-electronic array 300-302, as shown in Fig.15C and recited in Col.27/ll.20-30.

► Regarding claims 6, 7, 15 and 16, Peterson's optoelectronic array 300-302 includes a vertical cavity surface emitting lasers (VCSEL) and photodetectors, as recited in Col.4/ll.62-64.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 18-20 are *also* rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi'713 in view of general knowledge in the art.

► Claim 18 recites limitations that are basically the same as claims 1 and 10, while additionally reciting a support having parallel legs and guide pins attached to the submount of in claim 1. These additional limitations are rendered obvious by Ouchi'713 as shown in Fig.19-21, showing "guide pins" (=guide holes) 142 and parallel "legs" (=supports) 141, as recited in Col.15/ll.66-67 and Col.16/ll.1-17. Although Ouchi's "guide pins" and parallel legs/supports may be rather different than Applicant's, they represent different aspects of the same "thing(s)", serve for the same purpose(s), and capable of performing the same function(s), as generally known in the art.

► Regarding claim 19, Ouchi's flexible optical cable has a plurality of optical fibers 143 and openings 153 in Fig.20B that align with the "guide pins" 142, the guide pins 142 fitting into the openings 153. Although Ouchi's "guide pins" may be rather different than Applicant's, they represent different aspects of the same "thing", serve for the same purpose, and capable of performing the same function, as generally known in the art.

► Regarding claim 20, Ouchi's fiber supports 141 is made of metal (Si), as recited in Col.15/ll.66-67 and Col.16/ll.1-6.

8. Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson'084 or Ouchi'713, as applied to claims 1 and 10 above, and further in view of Brand et al. (USPAT 6,604,488).

Peterson'084 or Ouchi'713 shows all the limitations of claims 3 and 12, as previously applied to their parent claims 1 and 10, respectively, except the recitation that the can for opto-electronic housing being metallic.

To enclose opto-electronic circuits inside a metallic can is conventional and well known in the art, since the metallic can acts as a Faraday cage that screens the electronics from environmental electromagnetic fields. Support for this general knowledge in the art is provided by Brand et al., as recited in Col.4/ll.9-13 reciting the enclosure of the entire apparatus in a metal enclosure (=can), including detectors 17 and 18 shown in Fig.1 and recited in Col.3/ll.34-48.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to enclose the entire apparatus of Peterson'084 or Ouchi'713 in a metallic can, in order to provides superior resistance to electromagnetic interferences, as taught by Brand et al. in Col.4/ll.9-13

9. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson'084 or Ouchi'713, as applied to claims 5 and 14 above, and further in view of Jannson et al. (USPAT 6,594,050).

Peterson'084 or Ouchi'713 shows all the limitations of claims 8 and 17, as previously applied to their parent claims 5 and 14, respectively, except the recitation that Peterson's opto-electronic array 300-302 includes integrated lenses. As a matter of fact, integrated lenses belong to the broad category of opto-electronic devices, such that the limitation of claims 8 and 17 is already inherent in Peterson'084's and Ouchi'713's. This conventional and general knowledge in the art is supported by Jannson et al., showing in Fig.6 an integrated lens array 630 as part of an opto-electronic device 600 that also includes VCSELs and photodetectors, as recited in Col.10/ll.55-67 and Col.11/ll.1-3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use integrated lens array as taught by Jannson et al., instead of free-standing lens elements, since integrated lens arrays are mechanically more robust.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson'084 or Ouchi'713, as applied to claim 1 above, and further in view of Takagi (USPAT Appl. Pub. 2003/0127661 A1).

Peterson'084 or Ouchi'713 shows all the limitations of claim 9, as previously applied to their parent claim 1, except the recitation of a plurality of heat conductive plugs through the submount. As a matter of fact, hermetically packaging power lasers such as laser diodes and VCSELs needs heat conductive plugs for dissipating the power to the outside, as known in the art. Support for this general knowledge in the art is here provided by Takagi, showing in Fig. 4A a feed-through 60 that conducts heat

from the laser diode 11 (Sect.[0073] lines 1-3) to the sidewalls of case 32, as recited in Sect.[0094]-[0095].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use heat conductive plugs as taught by Takagi, in order to dissipate the heat generated by the power lasers to the outside, thus preventing the opto-electronics from high-temperature damage.

11. Claims 18-20 are *also* rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson'084 in view of Recktenwald et al. (USPAT Appl. Pub. 2003/0015776 A1).

Peterson'084 shows all the limitations of claim 18-20, as previously applied to claim 1, except the limitations of a support having parallel legs and guide pins attached to the submount of in claim 1, a flexible optical cable having a plurality of optical fibers and openings that align with the guide pins, the guide pins fitting into the openings.

Recktenwald et al. disclose in Fig.3-4 a support having parallel legs 28 (=receptable connector) and guide pins 30 (=press-fit tails) attached to the device 10 (hence, to the submount of the VCSEL), a flexible optical cable 24 having a plurality of optical fibers and openings (not shown but inherent) that align with, and fitted into, the guide pins 30, as recited in Sect.[0022].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a cable connector assembly to connect Peterson's opto-electronics package to a printed circuit board as taught by Recktenwald, since a such a

cable connector assembly renders connecting and disconnecting reproducible, simple and quick.

Communications

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard E Souw whose telephone number is 571 272 2482. The examiner can normally be reached on Monday thru Friday, 9:00 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571 272 2477. The central fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for regular communications as well as for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

bes
February 28, 2004

JOHN R. LEE
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